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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/630,751	07/31/2003	Kenji Shimizu	Q71391	9957

7590 03/17/2005

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Washington, DC 20037-3213

EXAMINER
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RICKMAN, HOLLY C

ART UNIT	PAPER NUMBER
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1773

DATE MAILED: 03/17/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

10/630,751

**Applicant(s)**

SHIMIZU ET AL.

**Examiner**

Holly Rickman

**Art Unit**

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 03 January 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |                                                                                                                        |                                                                                         |
|------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                                                       | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____                                                |

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 112***

1. The rejection of claims 1-12 under 35 U.S.C. 112, second paragraph, is withdrawn in view of Applicant's amendments.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tomiyasu et al. (US 6670055) in view of Chang et al. (US 6777066).

Tomiyasu et al. disclose a magnetic recording medium having a substrate, a pre-coat layer, multiple underlayers, a CoPt-alloy magnetic layer and a protective overcoat. The reference teaches that the precoat layer is formed from an alloy containing Cr and another element such as C in an amount up to 10 at%. This precoat layer corresponds to the claimed "orientation control layer" because it necessarily controls the orientation of the layer that is epitaxially grown thereon. The reference teaches that the recording medium can be perpendicular. See Figure 1; col. 3, line 60 to col. 4, line 8; col. 5, lines 13-15; col. 6, lines 28-36 and lines 49-50.

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Tomiyasu et al. is silent with respect to the claimed “softly magnetic under-film” (which has been interpreted to mean a soft magnetic layer) and the use of a monopole head.

Chang et al. teach the it is well known in the art to use a soft magnetic underlayer disposed on a substrate in a perpendicular magnetic recording medium for the purpose of guiding magnetic flux emanating from the magnetic head (col. 1, lines 35-51). The reference also teaches that it is well known in the art that single-pole magnetic heads allow for high linear recording densities to be achieved when used with perpendicular recording media (col. 1, lines 32-34).

It would have been obvious to one of ordinary skill in the art at the time of invention to add a soft magnetic layer on top of the substrate taught by Tomiyasu et al. in order to improve thermal stability of the medium by guiding stray flux emanating from the magnetic head as suggested by Chang et al. Furthermore, it would have been obvious to use a single-pole magnetic head in conjunction with the recording medium taught by Tomiyasu et al. in order to achieve high linear recording density.

With respect to the limitation of claim 3 requiring the presence of 30-70 at % C in the CrC layer, it is the Examiner’s contention that it would have been obvious to optimize the amount of C added to the CrC containing layer taught by Tomiyasu et al. Tomiyasu et al. teach that the addition of C to the Cr layer produces a fine crystal grain size and narrow grain size distribution. Thus, it would have been obvious to adjust the amount of C added to obtain the optimal benefit. Such as optimization would have been obvious since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art.

*In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

*Response to Arguments*

4. Applicant's arguments filed 1/3/05 have been fully considered but they are not persuasive.

Applicant argues that Tomiyasu et al. and Chang et al. do not teach or suggest all of the limitations of claims 1-12 as maintained by the examiner. Applicant argues that the upper pre-coat layer taught by Tomiyasu et al. cannot be considered an orientation control layer as asserted by the Examiner because there is no teaching of an orientation control layer containing C in either Tomiyasu et al. or Chang et al.

The examiner maintains the position of record that Tomiyasu et al. teaches a Cr alloy underlayer containing carbon that corresponds to the claimed orientation control layer (see col. 3, line 60 to col. 4, line 8; col. 6, lines 28-36). It is noted that the claims do not specify what layer is deposited directly on the orientation control layer. With respect to the argument that Tomiyasu et al. teaches a horizontal recording medium, Applicant's attention is directed to col. 6, lines 49-50 wherein the reference also teaches the use of a perpendicular recording layer.

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period

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will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Holly Rickman whose telephone number is (571) 272-1514. The examiner can normally be reached on Monday-Friday 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carol Chaney can be reached on (571) 272-1284. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Holly Rickman  
Primary Examiner  
Art Unit 1773

March 14, 2005